REMARKS

Claims 7, 8 and 12 have been canceled. Claims 6, 9-11 and 13-17 and new Claim 18 remain active in the case. Reconsideration is respectfully requested.

The present invention relates a method of moving visbreaking tar having a softening point greater than 80 C.

Specification Amendment

The specification of the application has been amended to recite those preceding applications that are related to the present application.

Clam Amendments

Claim 6 has been amended by incorporating the limitation of Claim therein. Further, new Claim18 has been added which is a combination of Claim 6 and dependent Claim 7. Here the dispersion is more narrowly defined as containing from 28 to 32 % by wt water. None of the amendments introduce new matter into the case. Entry of the amendments is respectfully requested.

Claim Objection

Claim 11 has been amended to correct the dependency of the claim so that it now depends upon Claim 6. Entry of the amendment is respectfully requested. Withdrawal of the objection to the claim is respectfully requested.

Invention

The present invention is the finding of a means by which a fluidized refinery material, i.e., fluidized visbreaking tar, is placed in condition that enables the material to be readily moved or transported. Thus, the process of the invention is the recovery and moving (transporting) of visbreaking tar by first fluidizing visbreaking tar by heating the tar to a temperature at least equal to the softening point of the tar, and then mixing the visbreaking tar

thus made fluid with a desired quantity of water and dispersing agent which is a material selected from the group consisting of the alkali metal salts of condensates of naphthalenesulfonic acid with formaldehyde, ammonium salts of condensates of naphthalenesulfonic acid with formaldehyde and mixtures thereof until a dispersion of oil in water is formed, wherein the water content of the dispersion is greater than 25 wt %. (In new Claim 18, the water content of the dispersion is stated as ranging from 28 to 32 % by wt.) This oil in water dispersion is the form by which the visbreaking tar is recovered and moved or transported as desired.

Prior Art Rejection

Claims 6-17 stand rejected based on 35 USC 103 as obvious over De Lullo et al, U. S. Patent 5,445,179 in view of Ohzeki et al, U. S. Patent 4,565,546. This ground of rejection is respectfully traversed.

As stated previously with respect to the Di Lullo patent, the same discloses a method of forming aqueous dispersions of an oil in which the likes of crude petroleum grades and petroleum residues such as atmospheric residues or vacuum residues is dispersed in water specifically by a sulfonate salt (sodium) dispersant, particularly one that is prepared by condensing (alkyl)naphthalene sulfonic acid and formaldehyde. In particular, the patent in the examples discloses the dispersal of two different oils which are a "Gela" crude petroleum and a vacuum distillation residue. It is helpful to point out that the vacuum distillation residue is an oil that is obtained from the vacuum distillation of a heavy oil, in turn, obtained from an atmospheric distillation process. On the other hand, in the present invention, a *visbreaking tar*, which is **not** a viscous oil as disclosed in De Lullo et al, is dispersed in water by the condensate of an (alkyl)naphthalene sulfonic acid and formaldehyde. In fact, a visbreaking tar is obtained by entirely different petroleum refinery processing than oil residues obtained from the vacuum distillation of an atmospheric heavy oil. Viscosity breaking is a mild cracking operation that is employed to reduce the viscosities of residual fuel oils and residua. A visbreaking tar is obtained as the bottoms product from a vacuum fractionator whose feed is the liquid products from a flash chamber. Visbreaking tar results from the non-catalytic

thermal processing that converts atmospheric or vacuum residues via thermal cracking to gas, naphtha, distillates and visbroken residues. Atmospheric and vacuum residues are typically charged to a visbreaker to reduce fuel oil viscosity and to increase distillate yield in a refinery. Further, the non-catalytic thermal cracking process can be conducted in the presence of hydrogen which facilitates the production of lighter hydrocarbons in the visbreaking process.

Applicants contend that the process of the invention as claimed in Claim 6 is also distinguished over the De Lullo et al disclosure on the basis that one of skill in the art would not expect the superior stability results of tar/water dispersions of the present invention that are achieved, as is evident from the stability data shown in the declaration accompanying the present amendment. Amended Claim 6 is consistent with the experimental results presented since it requires that the dispersion of oil-in-water have a water content of greater than 25 wt %. (De Lullo et al, on the other hand, only teaches a water content of the dispersion of greater than 15 wt %.(col 2, lines 15-16)) The data is also consistent with newly presented Claim 18 which requires a narrow water content for the dispersion of 28 to 32 wt %. The experiment of the declaration showing the results of the tar/water ratio of 70/30 is clearly within the scope of new Claim 18. Clearly, the present process of recovering and moving visbreaking tar is distinct from the process described in De Lullo Et al.

The deficiencies of the Di Lullo et al patent are believed to be neither overcome nor improved upon by the Ohzeki et al patent. In Ohzeki et al, although the patent discloses a method of dispersing a hydrocarbonaceous material in water by use of a sulfonic acid or sulfonate group containing aromatic compound, Ohzeki et al does not disperse a heavy oil in water, but rather a pitch material that is derived from most any source such as natural or synthetic pitches, although pitches derived from coal or petroleum are preferred. Further, the disclosed dispersant is not simply the condensation product formed by the reaction of an aldehyde such as formaldehyde with a sulfonate compound such as naphthalene sulfonic acid or in salt form. Rather, as set forth in Claim 1 and columns 1 and 2 of the patent, at least one first aromatic compound Y containing one or more sulfonic acid or sulfonate groups and having a ratio of organic values to inorganic values of at least 0.6 and at least one second aromatic compound Z containing one or more sulfonic acid or sulfonate groups and having a

ratio of organic values to inorganic values of not greater than 0.5 are reacted with an aldehyde such as formaldehyde. (Note that Table 1 in column 3 of the patent discloses the organic value character and inorganic value character of different groups in organic compounds.) Thus, the dispersant disclosed in Ohzeki et al is not that of Di Lullo et al, and the pitch materials disclosed in Ohzeki et al are not the heavy oils disclosed in Di Lullo et al. Further, neither of the two patents shows or suggests a way of dispersing visbreaking tars, which deficiency is believed to be significant in view of the stability data obtained and presented in the declaration. Moreover, upon the combination of the two references, it is not clear whether the skilled artisan would be led to employ the condensation product of Di Lullo et al for the dispersal of a visbreaking tar or the more complicated dispersant disclosed in Ohzeki et al. Accordingly, applicants maintain that the combined patents do not suggest the invention, and withdrawal of the prior art rejection is respectfully requested.

It is now believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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